AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of generating a reliability value ~~($L_{k,m}$) for~~ from a received multilevel signal ~~(r)~~ in relation to a number of predetermined signal symbols ~~($S_1,\ldots,S_M$)~~ each associated with a corresponding bit sequence including a first bit position ~~(m);~~, the ~~reliability~~ soft value being indicative of ~~likelihood information of receiving said multilevel signal;~~ a reliability value for the first bit position, the method comprising:

identifying ~~(502; 802)~~ a first one ~~($\check{s}_k$)~~ of the number of signal symbols as being closest to the received multilevel signal; ~~and~~

estimating ~~(506, 507; 804, 805)~~ the ~~reliability~~ soft value ~~based on a stored pre-computed~~ as a function of a first distance between the received signal and ~~function of at least~~ the first signal symbol and of a second distance between the received signal and a second one ~~($\hat{s}_k$)~~ of the number of signal symbols that is ~~, where the second signal symbol is the signal symbol~~ closest to the first signal symbol ~~of the signal symbols corresponding~~ and corresponds to a different binary value at the first bit position of the respective associated bit sequence than the first signal symbol; and

wherein estimating the soft value comprises estimating the second distance by a stored third distance between the first signal symbol and the second signal symbol.

2-3. (Canceled)

4. (Currently Amended) ~~A~~ The method according to claim 1 ~~3~~, ~~characterised in that~~ wherein the step of estimating the ~~reliability~~ soft value comprises the step of determining (506, 507) a polynomial function of the first distance and the second distance, wherein the polynomial function is multiplied by a predetermined constant (K).

5. (Currently Amended) ~~A~~ The method according to claim 4, ~~characterised in that~~ wherein the predetermined constant is selected depending on the noise distribution of the received multilevel signal.

6. (Canceled)

7. (Currently Amended) ~~A~~ The method according to any one of the claims 1, 4, and 5 ~~through 6~~, ~~characterised in that~~ wherein the ~~stored pre-computed~~ third distance ~~function~~ is stored in a look-up table ~~(508; 808) comprising a plurality of pre-computed distance functions~~ indexed by the number of signal symbols and the bit positions ~~of the number of bit sequences~~.

8. (Currently Amended) ~~A~~ The method according to any one of the claims 1, 4, 5, 31, and 32 ~~through 7~~, ~~characterised in that~~ wherein the method further comprises the step of providing the ~~reliability~~ soft value as an input to a decoder ~~(106)~~.

9. (Canceled)

10. (Currently Amended) ~~A~~ The method according to any one of the claims 1, 4, 5, 31, and 32 ~~through 9~~, ~~characterised in that~~ wherein the soft value is calculated as ~~likelihood information comprises~~ a log-likelihood ratio.

11. (Currently Amended) ~~A~~ The method according to any one of the claims 1, 4, 5, 31, and 32 ~~through 10~~, ~~characterised in that~~ wherein the step of identifying the first signal symbol as being closest to the received multilevel signal comprises the step of identifying the first signal symbol as being closest to the received multilevel signal with respect to a Euclidean distance measure in a signal space.

12. (Currently Amended) ~~A~~ The method according to claim 11, ~~characterised in that~~ wherein the signal space is related to the complex plane in quadrature amplitude modulation.

13. (Canceled)

14. (Currently Amended) ~~A~~ The method according to any one of the claims 1, 4, 5, 31, and 32 ~~through 13~~, ~~characterised in that~~ wherein the number of signal symbols are associated with the number of bit sequences such that the bit sequences associated with all nearest neighbours of each signal symbol only differ from the bit sequence of that signal symbol at one bit position.

15. (Currently Amended) ~~An arrangement~~ A device for generating a ~~reliability~~ soft value ~~($L_{k,m}$) for~~ from a received multilevel signal ~~(r)~~ in relation to a number of predetermined signal symbols ~~($S_1,\ldots,S_M$)~~ each associated with a corresponding bit sequence including a first bit position ~~(m);~~, the ~~reliability~~ soft value being indicative of a reliability value for the first bit position, ~~likelihood information of receiving said multilevel signal;~~ the ~~arrangement~~ device comprising:

~~first~~ processing means ~~(104)~~ adapted to

identify a first one of the number of signal symbols as being closest to the received multilevel signal; and

~~storage means (105) adapted to store a pre-computed distance~~ estimate the soft value as a function of ~~at least the~~ a first distance between the received signal and the first signal symbol and of a second distance between the received signal and a second one of the number of signal symbols~~, where the second signal symbol is the signal symbol~~ that is closest to the first signal symbol ~~of the signal symbols corresponding~~ and corresponds to a different binary value at the first bit position of the respective associated bit sequence than the first signal symbol; ~~and~~

storage means adapted to store a third distance between the first signal symbol and the second signal symbol; and

wherein the processing means is further adapted to estimate the second distance by the stored third distance ~~second processing means (104) adapted to estimate the reliability value on the basis of the stored pre-computed distance function~~.

16-17. (Canceled)

18. (Currently Amended) ~~An arrangement~~ The device according to claim 15 ~~17~~, ~~characterised in that~~ wherein the ~~second~~ processing means is further adapted to determine a polynomial function of the first distance and the second distance, wherein the polynomial function is multiplied by a predetermined constant (K).

19. (Currently Amended) ~~An arrangement~~ The device according to claim 18, ~~characterised in that~~ wherein the predetermined constant is a function of ~~selected depending on~~ the noise distribution of the received multilevel signal.

20. (Canceled)

21. (Currently Amended) ~~An arrangement~~ The device according to any one of the claims 15 through 20, ~~characterised in that~~ wherein the storage means is adapted to store ~~a plurality of pre-computed~~ the third distance ~~functions~~ in a look-up table indexed by the number of signal symbols and the bit positions ~~of the number of bit sequences~~.

22-30. (Canceled)

31. (New) A method of generating a soft value from a received multilevel signal in relation to a number of predetermined signal symbols each associated with a corresponding bit sequence including a first bit position, the soft value being indicative of a reliability value for the first bit position, the method comprising:

identifying a first one of the number of signal symbols as being closest to the received multilevel signal;

estimating the soft value as a function of a first distance between the received signal and the first signal symbol and of a second distance between the received signal and a second one of the number of signal symbols that is closest to the first signal symbol and corresponds to a different binary value at the first bit position of the respective associated bit sequence than the first signal symbol; and

wherein estimating the soft value further comprises the step of selecting, dependent on the first signal symbol and the first bit position, one of a number of stored functional relations between the received multilevel signal and the soft value.

32. (New) The method according to claim 31, wherein the stored functional relations are stored in a look-up table indexed by the number of signal symbols and the bit positions.

33. (New) The method according to any one of claims 1, 4, 5, 31, and 32, wherein identifying the first signal symbol comprises comparing the signal components of the received multilevel signal with predetermined threshold values.

34. (New) A device for generating a soft value from a received multilevel signal in relation to a number of predetermined signal symbols each associated with a corresponding bit sequence including a first bit position, the soft value being indicative of a reliability value for the first bit position, the device comprising:

processing means adapted to

identify a first one of the number of signal symbols as being closest to the received multilevel signal; and

estimate the soft value as a function of a first distance between the received signal and the first signal symbol and of a second distance between the received signal and a second one of the number of signal symbols that is closest to the first signal symbol and corresponds to a different binary value at the first bit position of the respective associated bit sequence than the first signal symbol;

storage means adapted to store a number of functional relations between the received multilevel signal and the soft value; and

wherein the processing means is further adapted to select a functional relation of said number of functional relations dependent on the first signal symbol and the first bit position.

35. (New) The device according to claim 34, wherein the storage means is adapted to store the number of functional relations in a look-up table indexed by the number of signal symbols and the bit positions.

36. (New) The device according to claim 34, wherein the processing means is adapted to identify the first signal symbol by comparing the signal components of the received multilevel signal with predetermined threshold values.

37. (New) The device according to any one of claims 34 through 36, wherein the processing means is adapted to calculate the soft value as a log-likelihood ratio.

38. (New) The device according to any one of claims 34 through 36, wherein the processing means is further adapted to identify the first signal symbol as being closest to the received multilevel signal with respect to a Euclidean distances in a signal space.

39. (New) The device according to claim 38, wherein the signal space is related to the complex plane in quadrature amplitude modulation.

40. (New) The device according to any one of claims 34 through 36 wherein the number of signal symbols are associated with the number of bit sequences such that the bit sequences associated with all nearest neighbours of each signal symbol only differ from the bit sequence of that signal symbol at one bit position.

41. (New) The device according to claim 34, wherein the device further comprises a decoder adapted to receive an input signal from the arrangement indicative of the determined soft value.

42. (New) The device according to claim 34, wherein the device is operable as a mobile terminal.